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EXAMINER	
ARMSTRONG, ANGELA A	
ART UNIT	**PAPER NUMBER**
2654	

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/181,021	YOSHIOKA ET AL.	
	Examiner	Art Unit	
	Angela A. Armstrong	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-18 and 20-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2, 4-18, and 20-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections – 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 5-13, 15-18, 20-21, and 23-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sethares (US Patent No. 5,504,270) in view of Serra (US Patent No. 5,536,902).

Sethares discloses a method and apparatus for dissonance modification to audio signals.

3. Regarding claims 1, 25, 37 and 43, at Figure 4A and 4B and col. 4, lines 49-52; col. 5, lines 24-29 and col. 9, line 35 to col. 10, line 57, Sethares discloses vocal input is passed to an analyzer to produce a spectrum of input partials in the form of frequency and amplitude domain, which reads on "extracting deterministic components from the input voice signal, the deterministic components including a plurality of sinusoidal wave components", since frequency and amplitude are forms of sinusoidal wave components.

Additionally, at Figure 4B, Sethares teaches separating the sinusoidal wave into frequency value coordinates and amplitude value coordinates which are numbered sequentially.

Additionally, at col. 10, lines 16-17, Sethares teaches the system allows a user to provide input timbre information by accessing information stored in the computer database, which reads on "memory means for memorizing reference pitch information."

Additionally, at col. 9, line 35 continuing to col. 10, line 57, Sethares teaches the modification of the frequencies of the partials based on a desired pitch or timbre, which reads on "modulating means for modulating the frequency value coordinates of the sinusoidal wave components."

Additionally, at col. 10, lines 35-43, Figure 4A, element 16, Figure 4B, and Figure 5, Sethares teaches implementation of a synthesizer for mixing the modulated sinusoidal components.

Sethares does not teach extracting only the deterministic components. However, implementation of extracting only deterministic components in a synthesizing system was well known.

In a similar field of endeavor, Serra teaches a method and apparatus for analyzing and synthesizing a sound by extracting and controlling a sound parameter and implements extraction of only deterministic components (col. 10, lines 3-29), for the purpose of generating a synthetic waveform of the deterministic component and then reanalyze and reextract the deterministic component, which is then subtracted from the magnitude spectra.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the embodiment of Sethares to specifically allow extracting only deterministic components from the input signal, as taught by Serra, for the purpose of generating a synthetic waveform of the deterministic component and then reanalyze and reextract the deterministic component, which is then subtracted from the magnitude spectra, because such a modification would account for more of the residual variations in the data.

Sethares does not specifically teach modulating amplitude value coordinates or a combining means for combining the modulated frequency value coordinates and the modulated amplitude value coordinates to synthesize sinusoidal wave components of the output voice signal having an output pitch and an output timbre different from an input pitch and an input timbre, of the input voice signal, and influenced by a reference pitch and a reference timbre of the reference signal.

Serra teaches a method and apparatus for analyzing and synthesizing a sound by extracting and controlling a sound parameter and implements extraction of deterministic components such as frequency and amplitude which are used to produce a synthesized output signal from mixing or combining the modifying the frequency and amplitude components (Figure 3, Figure 5, col. 10, line 44 continuing to col. 14, line 10). Serra teaches that the system provides various improvements for sound analysis/synthesis and enhances the practicability of the analysis/synthesis (col. 1, lines 8-12; col. 2, lines 37-40). Additionally, the teachings of Serra provide support for the amplitude value coordinate of the input voice signal is mixed with the corresponding reference amplitude value coordinate by a set ratio, since some contribution value of both the input and reference signal is mixed to obtain the resultant signal, necessarily requires some ratio or proportional of each signal to be used in the mixing process.

Serra does not teach the modification of the frequency and amplitude is achieved via modulation. However, implementation of amplitude and frequency modulation was well known.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Sethares to implement the frequency and amplitude modulation via the component modification techniques of Serra, for the purpose of improving and enhancing sound

analysis/synthesis as taught by Serra, and thereby improving the overall quality of the audio signal modification system.

Regarding claim 2, Sethares and Serra teach everything as claimed in claim 1. Additionally, at col. 10, lines 6-51, Sethares teaches implementation of an MIDI controller which allows the user to provide input timbre information.

Regarding claims 5 and 7, Sethares and Serra teach everything as claimed in claim 1. At col. 10, lines 35-43, Figure 4A, element 16, Figure 4B, and Figure 5, Sethares teaches implementation of a synthesizer for mixing the modulated sinusoidal components.

Regarding claim 6, Sethares does not specifically teach a control parameter to control the degree of modulation of the amplitude. However, implementation of control parameters for various amplitude parameters was well known.

Serra teaches implementation of user controlled amplitude parameters, such as tilt, for the purpose of allowing the user to freely control the parameter to accurately reflect the user's intentions (col. 11, lines 11-29).

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Sethares to implement parameter control of amplitude data, for the purpose of allowing the user to freely control the parameter to accurately reflect the user's intention.

Regarding claim 8, Sethares does not specifically teach separating the residual component after the sinusoidal components have been extracted.

Serra teaches (col. 10, lines 3-29) extraction of the frequency and amplitude components as the deterministic component and after the components are extracted, the residual or stochastic component is obtained.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Sethares to obtain the residual components after the sinusoidal components are obtained, to ensure the residual components are determined from a current frame to accurately reflect the variation of the input signal.

Regarding claims 30, 33, 36, and 42, at col. 4, line 49, Sethares teaches implementation of Fourier analysis. Sethares does not specifically teach implementation of a peak detecting means to extract the sinusoidal components. However, implementation of peak detection algorithms in a synthesizing system was well known in the art.

Serra (col. 10, lines 3-29) teaches implementation of detecting peaks in the magnitude spectra and is extracted and is used to obtain the time-series frequency and magnitude trajectories.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system to implement detecting peaks in the magnitude spectra, as taught by Serra, for the purpose of ensuring the most accurate and essential frequency/amplitude deterministic pairs are obtained.

4. Regarding claims 9, 13, 15, 26, 39, and 45, at Figure 4A and 4B and col. 4, lines 49-52; col. 5, lines 24-29 and col. 9, line 35 to col. 10, line 57, Sethares discloses vocal input is passed to an analyzer to produce a spectrum of input partials in the form of frequency and amplitude domain, which reads on "extracting deterministic components from the input voice signal, the

deterministic components including a plurality of sinusoidal wave components", since frequency and amplitude are forms of sinusoidal wave components.

Additionally, at col. 10, lines 13-27, Sethares teaches the implementation of the MIDI controller which allows user access to timbre profiles stored in a database, and teaches the system allows access to the input and reference partials to modify dissonance, which reads on "memorizing means."

At col. 10, lines 35-43, Figure 4A, element 16, Figure 4B, and Figure 5, Sethares teaches implementation of a synthesizer for mixing the modulated sinusoidal components.

Sethares does not teach extracting only the deterministic components. However, implementation of extracting only deterministic components in a synthesizing system was well known.

In a similar field of endeavor, Serra teaches a method and apparatus for analyzing and synthesizing a sound by extracting and controlling a sound parameter and implements extraction of only deterministic components (col. 10, lines 3-29), for the purpose of generating a synthetic waveform of the deterministic component and then reanalyze and reextract the deterministic component, which is then subtracted from the magnitude spectra.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the embodiment of Sethares to specifically allow extracting only deterministic components from the input signal, as taught by Serra, for the purpose of generating a synthetic waveform of the deterministic component and then reanalyze and reextract the deterministic component, which is then subtracted from the magnitude spectra, because such a modification would account for more of the residual variations in the data.

Additionally, at Figure 4B, Sethares teaches separating the sinusoidal wave into frequency value coordinates and amplitude value coordinates which are numbered sequentially.

Sethares does not specifically teach modulating amplitude value coordinates or a normalizing means for normalizing the amplitude value coordinates of the sinusoidal wave components of the input voice signal and a mixing means for mixing the normalized amplitude value coordinates of the input voice signal and the memorized amplitude value coordinates of the reference voice signal with one another by a predetermined ratio to produce mixed amplitude value coordinates and multiplying means for multiplying the normalized amplitude value coordinates of the sinusoidal wave components of the input voice signal with the mean amplitude of the input voice signal.

Serra teaches a method and apparatus for analyzing and synthesizing a sound by extracting and controlling a sound parameter and implements extraction of deterministic components such as frequency and amplitude which are used to produce a synthesized output signal from mixing or combining the modulated frequency and amplitude components (Figure 3, Figure 5, col. 10, line 44 continuing to col. 14, line 10). Serra teaches that the system provides various improvements for sound analysis/synthesis and enhances the practicability of the analysis/synthesis (col. 1, lines 8-12; col. 2, lines 37-40). Additionally, the teachings of Serra provide support for the amplitude value coordinate of the input voice signal is mixed with the corresponding reference amplitude value coordinate by a set ratio, since some contribution value of both the input and reference signal is mixed to obtain the resultant signal, necessarily requires some ratio or proportional of each signal to be used in the mixing process.

Serra does not teach the modification of the frequency and amplitude is achieved via modulation. However, implementation of amplitude and frequency modulation was well known.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Sethares to implement the frequency and amplitude modulation via the component modification techniques of Serra, for the purpose of improving and enhancing sound analysis/synthesis as taught by Serra, and thereby improving the overall quality of the audio signal modification system.

Regarding claim 10, Sethares and Serra teach everything as claimed in claim 9. Sethares does not specifically teach a control parameter to control the degree of modulation of the amplitude. However, implementation of control parameters for various amplitude parameters was well known.

Serra teaches implementation of user controlled amplitude parameters, such as tilt, for the purpose of allowing the user to freely control the parameter to accurately reflect the user's intentions (col. 11, lines 11-29).

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Sethares to implement parameter control of amplitude data, for the purpose of allowing the user to freely control the parameter to accurately reflect the user's intention.

Regarding claim 11, Sethares and Serra teach everything as claimed in claim 9. Additionally, at col. 10, lines 16-17, Sethares teaches the system allows a user to provide input timbre information by accessing information stored in the computer database, which reads on "memory means for memorizing reference pitch information."

Additionally, at col. 9, line 35 continuing to col. 10, line 57, Sethares teaches the modification of the frequencies of the partials based on a desired pitch or timbre, which reads on "modulating means for modulating the frequency value coordinates of the sinusoidal wave components."

Additionally, at col. 10, lines 35-43, Figure 4A, element 16, Figure 4B, and Figure 5, Sethares teaches implementation of a synthesizer for mixing the modulated sinusoidal components

Regarding claim 12, Sethares and Serra teach everything as claimed in claim 11. Additionally, at col. 10, lines 6-51, Sethares teaches implementation of an MIDI controller which allows the user to provide input timbre information.

Regarding claim 16, Sethares does not specifically teach separating the residual component after the sinusoidal components have been extracted.

Serra teaches (col. 10, lines 3-29) extraction of the frequency and amplitude components as the deterministic component and after the components are extracted, the residual or stochastic component is obtained.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Sethares to obtain the residual components after the sinusoidal components are obtained, to ensure the residual components are determined from a current frame to accurately reflect the variation of the input signal.

Regarding claims 31, 34, 38 and 44, at col. 4, line 49, Sethares teaches implementation of Fourier analysis. Sethares does not specifically teach implementation of a peak detecting means

to extract the sinusoidal components. However, implementation of peak detection algorithms in a synthesizing system was well known in the art.

Serra (col. 10, lines 3-29) teaches implementation of detecting peaks in the magnitude spectra and is extracted and is used to obtain the time-series frequency and magnitude trajectories.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system to implement detecting peaks in the magnitude spectra, as taught by Serra, for the purpose of ensuring the most accurate and essential frequency/amplitude deterministic pairs are obtained.

5. Regarding claims 17, 23, 27, 28, 29, and 41 at Figure 4A and 4B and col. 4, lines 49-52; col. 5, lines 24-29 and col. 9, line 35 to col. 10, line 57, Sethares discloses vocal input is passed to an analyzer to produce a spectrum of input partials in the form of frequency and amplitude domain, which reads on "extracting deterministic components from the input voice signal, the deterministic components including a plurality of sinusoidal wave components", since frequency and amplitude are forms of sinusoidal wave components.

Additionally, at Figure 4B, Sethares teaches separating the sinusoidal wave into frequency value coordinates and amplitude value coordinates.

Additionally, at Figure 4B, Sethares teaches separating the sinusoidal wave into frequency value coordinates and amplitude value coordinates which are numbered sequentially.

Additionally, at col. 10, lines 13-27, Sethares teaches the implementation of the MIDI controller which allows user access to timbre profiles stored in a database, and teaches the

system allows access to the input and reference partials to modify dissonance, which reads on "memorizing means."

Additionally, at col. 10, lines 16-17, Sethares teaches the system allows a user to provide input timbre information by accessing information stored in the computer database, which reads on "memory means for memorizing reference pitch information."

Additionally, at col. 9, line 35 continuing to col. 10, line 57, Sethares teaches the modification of the frequencies of the partials based on a desired pitch or timbre, which reads on "modulating means for modulating the frequency value coordinates of the sinusoidal wave components."

At col. 10, lines 35-43, Figure 4A, element 16, Figure 4B, and Figure 5, Sethares teaches implementation of a synthesizer for mixing the modulated sinusoidal components.

Sethares does not teach extracting only the deterministic components. However, implementation of extracting only deterministic components in a synthesizing system was well known.

In a similar field of endeavor, Serra teaches a method and apparatus for analyzing and synthesizing a sound by extracting and controlling a sound parameter and implements extraction of only deterministic components (col. 10, lines 3-29), for the purpose of generating a synthetic waveform of the deterministic component and then reanalyze and reextract the deterministic component, which is then subtracted from the magnitude spectra.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the embodiment of Sethares to specifically allow extracting only deterministic components from the input signal, as taught by Serra, for the purpose of generating a synthetic

waveform of the deterministic component and then reanalyze and reextract the deterministic component, which is then subtracted from the magnitude spectra, because such a modification would account for more of the residual variations in the data.

Sethares does not specifically teach modulating amplitude of the sinusoidal wave components. However, modifying the amplitude of sinusoidal wave components in a synthesizing system was well known in the art.

In a similar field of endeavor, Serra teaches a method and apparatus for analyzing and synthesizing a sound by extracting and controlling a sound parameter and implements modifying the obtained frequency and amplitude parameters to generate a desired synthesized output (Abstract, col. 11, lines 10-67), for the purpose of improving the musical synthesizer.

Serra does not teach the modification of the frequency and amplitude is achieved via modulation. However, implementation of amplitude and frequency modulation was well known.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Sethares to implement the frequency and amplitude modulation via the component modification techniques of Serra, for the purpose of improving and enhancing sound analysis/synthesis as taught by Serra, and thereby improving the overall quality of the audio signal modification system.

Sethares does not specifically teach modulating amplitude value coordinates or a combining means for combining the modulated frequency value coordinates and the modulated amplitude value coordinates to synthesize sinusoidal wave components of the output voice signal having an output pitch and an output timbre different from an input pitch and an input timbre, of

the input voice signal, and influenced by a reference pitch and a reference timbre of the reference signal.

Serra teaches a method and apparatus for analyzing and synthesizing a sound by extracting and controlling a sound parameter and implements extraction of deterministic components such as frequency and amplitude which are used to produce a synthesized output signal from mixing or combining the modulated frequency and amplitude components (Figure 3, Figure 5, col. 10, line 44 continuing to col. 14, line 10). Serra teaches that the system provides various improvements for sound analysis/synthesis and enhances the practicability of the analysis/synthesis (col. 1, lines 8-12; col. 2, lines 37-40). Additionally, the teachings of Serra provide support for the amplitude value coordinate of the input voice signal is mixed with the corresponding reference amplitude value coordinate by a set ratio, since some contribution value of both the input and reference signal is mixed to obtain the resultant signal, necessarily requires some ratio or proportional of each signal to be used in the mixing process.

Serra does not teach the modification of the frequency and amplitude is achieved via modulation. However, implementation of amplitude and frequency modulation was well known.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Sethares to implement the frequency and amplitude modulation via the component modification techniques of Serra, for the purpose of improving and enhancing sound analysis/synthesis as taught by Serra, and thereby improving the overall quality of the audio signal modification system.

Regarding claim 18, Sethares and Serra teach everything as claimed in claim 17. Additionally, at col. 10, lines 6-51, Sethares teaches implementation of an MIDI controller which allows the user to provide input timbre information.

Additionally, at col. 9, line 35 continuing to col. 10, line 57, Sethares teaches the modification of the frequencies of the partials based on a desired pitch or timbre, which reads on "modulating means for modulating the frequency value coordinates of the sinusoidal wave components."

Regarding claim 20, Sethares and Serra teach everything as claimed in claim 17. Additionally, at col. 10, lines 6-51, Sethares teaches implementation of an MIDI controller which allows the user to provide input timbre information

Sethares does not specifically teach modulating amplitude of the sinusoidal wave components. However, modifying the amplitude of sinusoidal wave components in a synthesizing system was well known in the art.

In a similar field of endeavor, Serra teaches a method and apparatus for analyzing and synthesizing a sound by extracting and controlling a sound parameter and implements modifying the obtained frequency and amplitude parameters to generate a desired synthesized output (Abstract, col. 11, lines 10-67), for the purpose of improving the musical synthesizer.

Serra does not teach the modification of the frequency and amplitude is achieved via modulation. However, implementation of amplitude and frequency modulation was well known.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Sethares to implement the frequency and amplitude modulation via the component modification techniques of Serra, for the purpose of improving and enhancing sound

analysis/synthesis as taught by Serra, and thereby improving the overall quality of the audio signal modification system.

Regarding claim 21, Sethares and Serra teach everything as claimed in claim 17. Additionally, at col. 10, lines 6-51, Sethares teaches implementation of an MIDI controller which allows the user to provide input timbre information.

Regarding claim 24, Sethares does not specifically teach separating the residual component after the sinusoidal components have been extracted.

Serra teaches (col. 10, lines 3-29) extraction of the frequency and amplitude components as the deterministic component and after the components are extracted, the residual or stochastic component is obtained.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Sethares to obtain the residual components after the sinusoidal components are obtained, to ensure the residual components are determined from a current frame to accurately reflect the variation of the input signal.

Regarding claims 32, 35, 40, and 46, at col. 4, line 49, Sethares teaches implementation of Fourier analysis. Sethares does not specifically teach implementation of a peak detecting means to extract the sinusoidal components. However, implementation of peak detection algorithms in a synthesizing system was well known in the art.

Serra (col. 10, lines 3-29) teaches implementation of detecting peaks in the magnitude spectra and is extracted and is used to obtain the time-series frequency and magnitude trajectories.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system to implement detecting peaks in the magnitude spectra, as taught by Serra, for the purpose of ensuring the most accurate and essential frequency/amplitude deterministic pairs are obtained.

6. Claims 4, 14, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sethares (US Patent No. 5,504,270) in view of Serra (US Patent No. 5,536,902) as applied to claims 1, 9, and 17 above, and further in view of well known prior art.

7. Regarding claims 4, 14, 22 Sethares and Serra teach everything as claimed in claims 1, 9, 17. Sethares teaches detecting a pitch of the input signal based on results of extraction at col. 9, lines 38-52.

Sethares does not specifically disclose a switch means for outputting an original of the input voice signal in situations in which a pitch is not detected from the input signal. However, implementation of a switching mechanism to output an original signal when an input signal cannot be analyzed was well known in the art.

Therefore, it would have been obvious to output an original signal in cases in which a pitch is not detected from the input signal to avoid large fluctuations in the pitch of the signal, for the purpose of providing for smooth transitions as the parameter information is synthesized and reducing the unnaturalness of the synthetic signal.

Response to Arguments

8. Applicant's arguments with respect to claims 1-2, 4-18, and 20-47 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that it would not have been obvious to sequentially number the components of the input voice and the sinusoidal wave components of the reference voice. The Examiner argues Sethares provides support for the sequentially numbering of frequency and amplitude components at Figure 4B.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela A. Armstrong whose telephone number is 571-272-7598. The examiner can normally be reached on Monday-Thursday 11:30-8:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Angela A Armstrong
Examiner
Art Unit 2654

AAA
May 29, 2005

Angela A. Armstrong